stant irrigation is permitted, so that when the current is turned on by means of the foot-switch, the bubbles which form or the desiccated mucosa that accumulates is not allowed to obstruct the field. By gently manipulating the instrument and electrode simultaneously, a "V" shaped cut is made through the glandular enlargement. The entire procedure takes but a few minutes. It is no more painful than the passage of an ordinary sound. No anesthesia is necessary, and the entire procedure can be carried out in an ordinary urological office. The only preparatory and after treatment required is urotropin to keep the urine aseptic. If there are pus cells present in the urine, previous to the operative procedure, there is apt to be an acute cystitis for three or four days; but with urotropin and daily irrigations of the bladder, it subsides. However, the larger majority of cases are not followed by cystitis, although the patient may possibly pass some blood in his urine probably a few days afterwards.

In some cases, it is necessary to fulgurate two or three times at intervals of two weeks in order to produce a result. But I have never found it necessary, as yet, to fulgurate more than three times. I have had two recurrences, one six months following the first treatment. I refulgurated him at the present date, six months later; and there is no sign of recurrence. In the other case, recurrence came twelve months later, and I am about to refulgate him. These two cases are both luetic, and the latter one has a relaxed sphincteric orifice, and I believe that the bulging in its mid portion is due to a falling away of the laterals, giving one the impression of a raised median obstruction. This patient has a cerebro-spinal lues.

Examination a few weeks after fulguration shows ordinarily a swelling of the lateral prostatic lobes, due to edema, as a result of the burning; but this soon subsides, and a later examination reveals a normal orifice.

The fulgurating current undoubtedly penetrates through the mucosa into the glandular structure, causing contracture and shrinkage with destruction of tissue, and it is advisable not to burn too deeply or too much at the first application, but have your patient return in two weeks for further observation or treatment if necessary. It is advisable to fill the bladder with boric acid solution before withdrawing the instrument, as this tends to lessen the discomfort of the first urination, and at the same time is possibly beneficial because of its antiseptic effect.

The following cases illustrate the procedure:

Mr. J. S., age 42, married, machinist, complains of frequency four times each night and eight times during the day; pain across the bladder, especially before urination; also some pain across the right hip. Past history: gonorrhoea seventeen years ago, sore on penis twenty-five years ago. One and one-half ounces of residual urine. Urine examination showed few pus cells. Wassermann reports from two different laboratories negative. Prevocative Wassermann negative. Rectal examination: prostate not enlarged, left vesicle indurated. Cystoscopic picture: trabeculation of bladder wall, with prominent eminence at the neck of the bladder, marked declivity into the posterior urethra.

On March 3, 1917, burned a "V" shaped piece from the apex of the glandular enlargement. On April 2, 1917, a re-examination showed a much shrunken scarified area and the patient's symptoms had disappeared.

Mr. A. M., age 46, married, merchant, family and previous histories negative, veneral denied, but had previously been treated for stricture of the urethra. Wassermann negative, urine examination showed occasional leucocytes; presented himself complaining of burning before urination, urgency, pain across the small of the back, frequency six times during day and three times at night. Symptoms had come on gradually, though four years previously, had gradual inability to urinate, which condition improved under treatment with sounds. Present examination on 2nd day of August, 1917: 24 F. catheter passed and 7 c.c. of residual urine noted. Cystoscopic examination revealed a median protuberance at the neck of the bladder and a large verumontanum, with some congestion of the trigon. Catheterized urine from kidneys normal. Functional tests normal. Patient fulgurated on August 23rd, which was followed for three days with fever and chills. On August 30th recystourethroscoped and a large white scar on the apex of the median portion was visible. September 4th, patient passed blood and the feeling of urgency was more marked. September 6th, examination showed a whitish slough. On October 17th, the patient felt entirely well and cystoscopic picture showed no median bar present, but a "V" shaped sulcus at neck of the bladder and slight deformity and swelling of lateral prostatic lobes. On December 4th, patient felt entirely cured, no urgency, no difficulty in urination, no pain in back, no pus in the urine and no residual.

Conclusions.

1. There are a number of median bar obstructions at the neck of the bladder, which are of the glandular variety.
2. The glandular type are either enlarged median lobe of the prostate or Albarrans glands.
3. All of these cases can be relieved and the majority of them cured, by means of the fulgurating current.

RECURRENCE OF STONE IN THE KIDNEY AFTER OPERATION.

By W. P. WILLARD, M. D., San Francisco.

The frequency with which stones reform in kidneys, from which stones have been removed, is a matter of great importance to patients having the stone-forming tendency.

From my experience patients are not informed of the likelihood of stone recurrence and are surprised that a second operation is necessary for the same condition for which they had been before operated upon.

It is hard to find any useful statistics on the recurrence of renal calculi, as it is impossible to tell from symptoms, or lack of symptoms, if there has been a recurrence. Systematic X-ray examinations are not made, as a rule, after operations and this means of diagnosis is comparatively recent.

Hugh Cabot collected a series of sixty-six cases of stone in the kidney, which were followed after operation by X-ray examinations, thirty-four, or fifty per cent., of these were well and thirty two, or forty-nine per cent., had had stone recurrence.

Thirty cases of nephrotomy showed a recurrence in fifty-six per cent.

Thirty-three pyelotomies showed fifty-one per cent. recurrence.

Twelve nephroctomies showed stone formation in the other kidney in one case.

These figures show that we may have an unknown condition in individuals which causes stone formation and also that in the kidneys themselves conditions exist that influence formation.

Cabot thinks that infection of the kidney does not produce any greater liability to recurrence of stone than it does in the primary formation of stone.

This may be true, but it seems to me that the cause of infection, or the means that continues the infection after the stone is removed, is a potent factor. This, as a rule, is due to the lack of proper drainage either in the pelvis or in the kidney proper, from tissue destruction. This would also apply to the length of time the stone had been in the kidney. If a large area of tissue had been destroyed and the cavity drains well, there is less likelihood of stone formation than there would be in a small cavity, which was poorly drained.

The fact that more stones recur in patients under thirty-five than over does not upset this idea of drainage, because the stone-forming tendency is also greater at that time of life.

Diet and medication seem to have little effect in preventing recurrence of renal calculi. Most authors prescribe diets, mineral waters and various drugs, all of which have no specific effect, but are such that tend to aid the digestive and eliminative processes. As this is a matter of years and not a few months, if we are to derive any benefit at all it is well to regulate the habits of the individual in as simple a way as possible, or he will quickly discard your restrictions.

It is well to have the patient keep in as good a condition of health as possible by eating a plain mixed diet, avoiding alcoholics or too much tea or coffee, taking regular exercise and drinking plenty of water.

At the time of operation for renal calculi, we should ascertain, if possible, in case of pelvic stone, if any condition exists that prevents the pelvis from emptying freely. This may be due to ureteral kinking from a movable kidney; a constriction of the ureter or pressure from an aberrant vessel.

In the kidney the cavities, left after the removal of calculi, should be opened widely into the pelvis so that the urine readily drains from them.

After operations I have, in a few cases, lavaged the pelvis after the patients had recovered from their operation. This certainly hastens the clearing of the urine where there has been infection, but whether it has any effect in preventing stone recurrence, I cannot state.

It is a question at times whether we should again operate on some of these patients.

I have recently seen a man over fifty who had four years ago several calculi removed from one kidney. These had caused considerable destruction of the parenchyma. He had, and has, a high blood pressure and is not a good subject for surgery, being months in recovering from the effects of his operation. At present he has again several calculi in the kidney, but the function of this organ is almost as good as its fellow and the man is feeling well. I have advised him to be under observation, but unless impelling symptoms appear, not to be operated upon.

We should after an operation for renal calculi, impress upon our patients the possibility of stones recurring and the necessity of his keeping under observation. X-ray examinations should be made from time to time and the occasional examination of the urine and the lack of symptoms should not be relied upon.

We should, in operating, try to do so in such a way that we do not leave a large amount of scar tissue. Keep in mind the possibility of a second operation.

The use of rubber drainage tubes, or prolonged drainage with much scar tissue resulting, is a thing that can be avoided by seeing that the urine can drain freely into the bladder and after treatment through the ureteral catheter if necessary.

I recently removed a kidney from which a calculus was taken two years ago. The wound was drained by means of tubes and a sinus persisted after their removal, due to a constriction in the ureter that was not recognized. In order to get the kidney out, I had to dissect it from a large mass of scar tissue which was everywhere adherent and must interfere with surrounding organs.

What I have tried to convey, in this short paper, is the necessity for a better study of cases of nephrolithiasis before, during and after operation.

Book Reviews

Surgical Clinics of Chicago. October, 1918. Vol. 2, No. 5. Published bi-monthly by W. B. Saunders Co., Philadelphia. Price, per year, $10.

Contents—A. D. Bevan: Congenital wry neck. Desmoid tumor of abdominal wall. Epithelioma of leg. Ulcer of stomach on lesser curvature. Abscess of lung. D. N. Eisendrath: Clinical lecture on the acute abdomen. C. L. Mix: Gastric carcinoma. E. A. Printy: Demonstration of perfected technic for posterior gastro-enterostomy and for cholecystotomy. E. L. Moorhead: Exstrophy of bladder. C. M. McKenna: Clinic on genito-urinary surgery; papilloma of bladder; kidney stone; ureteral stone; acute epididymitis. T. J. Watkins: Presentation of cases treated by radium for hemorrhages due to benign causes. C. B. Reed: Obstetric clinic. C. A. Parker: Neglected club-feet. M. A. Bernstein: Teno-peritendinous transposition, improved technic for tendon transplantation. A. J. Ochsner: Bilateral Gritti-Stokes amputation.

The Human Skeleton. By Herbert Eugene Walter, Associate Professor of Biology, Brown University, with 175 illustrations and 214 pages. The Macmillan Company, New York.

The writer was much interested in reading the above work; it recalled his earlier studies in biology, and really recalled many interesting facts concerning the evolution of the skeleton, both in man and the lower animals. Everything is plainly stated and therefore will be very useful to the